

United States Department of Agriculture Forest Service

Aviation Safety Alert

No. 2004-08

August 24, 2004

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Subject: Clearance From Obstacles During External Load Operations

Area of Concern: Helicopter Operations

Distribution: Aviation Operations

Discussion: During the last two seasons there have been several rotor blade strikes involving long-line or water delivery operations. These events occurred due to a variety of contributing factors. However, consistent with each of these blade strikes was the presence of trees, snags, brush, or other obstacles within the safety circle of the aircraft at the critical point during the delivery/pickup of an external load.

- July 7, 2003, a Sikorsky S-64 had a tail rotor strike in vegetation, damaging all four tail rotor blades while dipping from a tank.
- July 1, 2004, a Sikorsky 58T descended below barriers during a long-line mission and contacted tree tops damaging the tip caps of three main rotor blades.
- July 18, 2004, a Sikorsky CH-54A main rotor blades stuck vegetation at a dip site. Again the result was damage to four of six tip caps on the main rotor blades.
- August 11, 2004, a tail rotor strike of a snag during a long-line cargo delivery resulted in an accident. The aircraft was totally destroyed in a post crash fire and the pilot was killed.

In each case above, the presence of vegetation and other obstacles was recognized either by the pilots or by agency personnel.

Although ground crews may attempt to mitigate and/or identify hazards, pilots have the responsibility to ensure the aircraft as configured can safely perform the mission. Pilots must ensure that both they and their aircraft are capable of accomplishing the mission. Ground crews must do all they can to clear areas of obstacles that may present a hazard, accurately assess the height of obstacles by triangulation or the use of a clinometer, order appropriate long-line length to keep aircraft clear of obstacles, and communicate with pilots information pertinent to the operation including all hazards. Once control measures have been implemented and the risks mitigated the delivery or pickup can finally be completed.

Recommendations: The performance of external load missions must be contingent upon proper assessment and preparation of the delivery site by first removing and mitigating hazards.

1. Selection of dip/snorkle sites should occur in concert with agency oversight and concurrence.
2. In areas of sloping terrain or with obstacles rising to one or more sides of the cargo pickup/delivery area, or dip site, pilot should maintain aircraft clearance from all obstacles in accordance with the landing area safety circle requirements for the type aircraft. The safety circle is generally recognized as 1 1/2 times the rotor diameter.
2. When obstacles present a risk of contact with aircraft or rotor blades, the mission should be declined by the pilot until hazards are removed, additional line can be added, or a better location can be identified. Pilot's have the final say in accepting and/or denying any mission.

This Safety Alert has been coordinated with the Department of Interior, Aviation Management Directorate.

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